

US ARMY AVIATION AND MISSILE COMMAND (G-4) ENVIRONMENTAL DIVISION



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AMCOM G-4 ACTIVITIES

- Introduction – Who Is the G-4 and Where are They Located
- Organization
- Environmental Management System (EMS)
- Where are the Hazardous Materials
- Why Eliminate the Targeted HM
- Ongoing Activities
- Summary



MAJOR AMCOM LOCATIONS



Ft. Wainwright, AK

Ft. Lewis, WA

Groton, CT

LEAD

Ft Eustis, VA

Ft Bragg, NC

Springfield, MO

Ft Campbell, KY

Ft Sill, OK

Ft Bliss, TX

Killeen, TX

Temple, TX

San Angelo, TX

Ft. Rucker, AL

Gulfport, MS

Hunter AAF, GA

• Korea

• Europe

o 2 Depots

• 6 OLRs

⊠ 6 Satellite OLRs

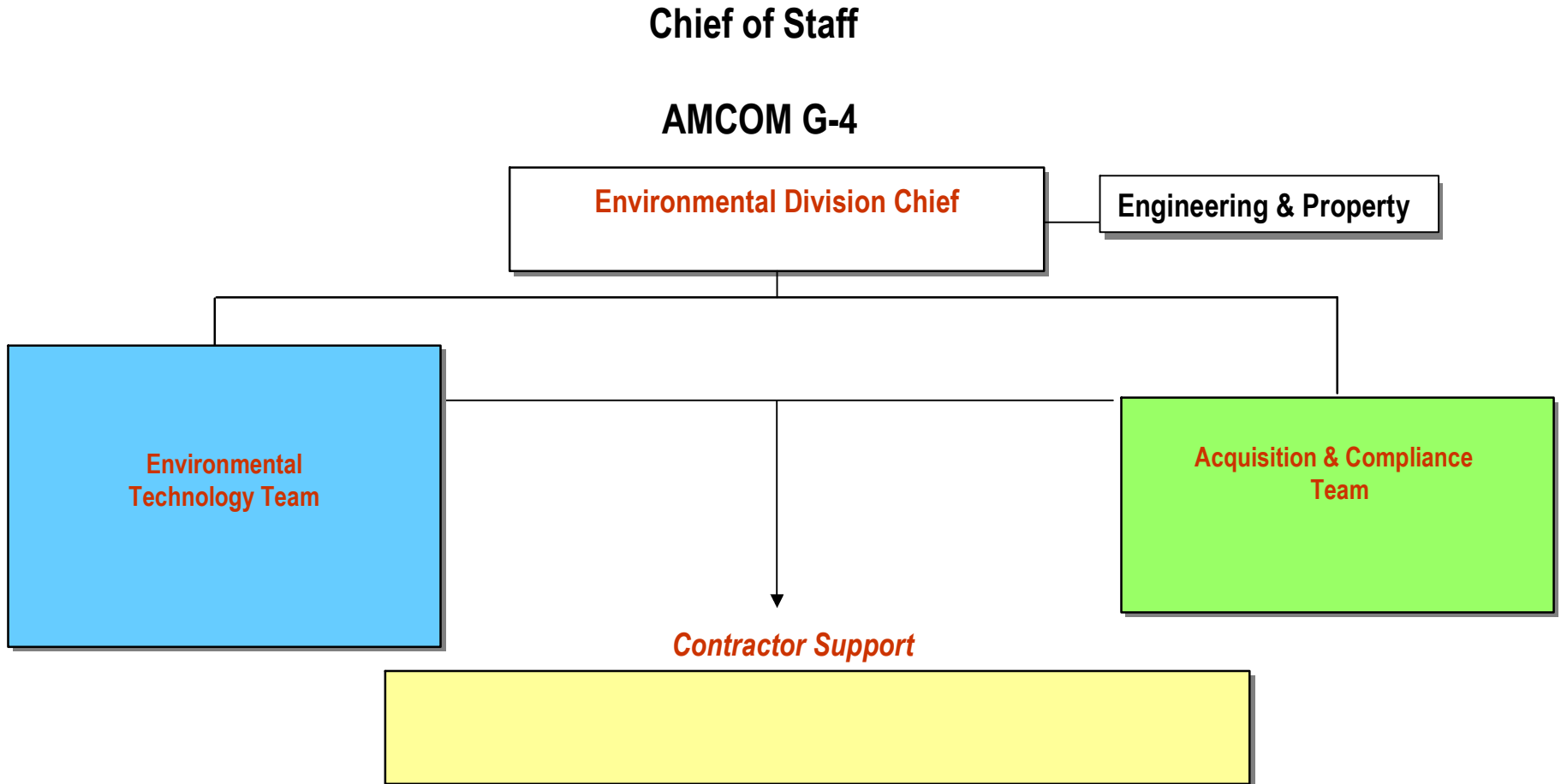
* 4 AVCRADs

X 2 ALCOEs

▲ 1 Fleet Mgt Initiative

Wheeler AAF, HI

G-4 ORGANIZATION



AMCOM ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS)

- AMCOM EMS Policy No. 200-8 Approved and Implemented.
- AMCOM Policy: “*Each AMCOM installation or activity shall evaluate its mission and implement an EMS that best suits its mission needs.*”
- AMCOM is a Tenant in Most Locations and Participates With the Host Installation EMS Program.
- Actively monitoring EMS of AMCOM Activity and Ensuring it Fits With that of Host Installation
- Integrate EMS with Other Activities (i.e., LEAN, 6 SIGMA, Safety)

LETTERKENNY ARMY DEPOT EMS

- **DoD Pilot Program**
- **Have Implemented EMS**
- **Self Declared Conformance with ISO 14001 Standard in September 03**
- **Objectives and Targets Defined**
 - **Divert 35% of Solid Waste from Landfill**
 - **Reduce Quantity of Toxic Hazardous Chemicals Used and Disposed**
- **3rd Party Registered in FY 04**
 - **Registration Audit in July 04**



CORPUS CHRISTI ARMY DEPOT EMS

- Tenant on Naval Air Station Corpus Christi
- Developed a Separate EMS from the Navy
- Participates in Navy EMS meetings
- Signed EMS Policy by Commander
- Gap Analyses completed and being addressed
- Implementation Plan being executed
- Established Environmental Quality Control Committee (EQCC) and working EMS Team
- **Scheduled for Implementation in December of 2005**



AMCOM G-4 GOALS AND OBJECTIVES

- Eliminate the use of Class 1 ODCs and to Reduce the Presence of HAZMATs in Aviation and Missile Systems
 - Identification and elimination of Ozone Depleting Compounds
 - Identification & Reduction of Hazardous Materials
 - Ensure Environmental Compliance with Public Laws, Executive Orders, Army Regulations, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)

- **Technical Manuals**
 - **Depot Maintenance Work Requirements (DMWRs)**
 - **Technical Manuals (TMs)**
 - **Technical Bulletins (TBs)**
 - **Joint Documents (NAVAIRs)**
 - **Interactive Electronic Technical Manuals (IETMs)**
 - **Maintenance Engineering Orders (MEOs)**

HIGH PRIORITY HAZARDOUS MATERIALS

- **Asbestos**
 - Friable – all forms
- **Beryllium**
 - Metals, Dusts, Mists, Fumes
- **Cadmium**
 - Metal, Dusts, Mists, Fumes
- **Chromates (hexavalent (Cr^{+6}))**
 - Dusts, Mists, Fumes,
 - Strontium Chromate found in Primers
- **Lead**
 - Lead-Free Solder



TARGETED HAZARDOUS MATERIALS

- Solvents / Cleaners
 - High Volatile Organic Compounds (VOC) / Hazardous Air Pollutants (HAP)/ Global Warming Potential
 - Also found in Coatings and Thinners
- Adhesives / Sealants
 - HIGH VOCs/HAPs
 - Hazardous Constituents



TARGETED HAZARDOUS MATERIALS (Cont'd.)

- Paints and Coatings
 - CARCs, Primers, Non-Skids, etc. – High VOCs, HAPs and HMs
- Lubricants and Functional Fluids
 - Hydraulic Oils, Lubricating Oils, Greases, Oils, etc.
 - VOCs/HAPs, HM Content

WHY ELIMINATE TARGETED HM?

- **Asbestos, Beryllium, Chromium and Cadmium are Known Human Carcinogens (IARC Group 1A)**
 - **OSHA Regulations Establish Permissible Exposure Limits (PEL)**
 - **Cadmium PEL**
 - **5.0 $\mu\text{g}/\text{m}^3$, (Action Level 2.5 $\mu\text{g}/\text{m}^3$, Alert Level 1.25 $\mu\text{g}/\text{m}^3$)**
 - **Chromates (Cr^{+6}) Proposed PEL**
 - **1 $\mu\text{g}/\text{m}^3$ (Action Level 0.5 $\mu\text{g}/\text{m}^3$, Alert Level 0.25 $\mu\text{g}/\text{m}^3$)**
 - **Beryllium PEL**
 - **2.0 $\mu\text{g}/\text{m}^3$ (Air, Action Level 1 $\mu\text{g}/\text{m}^3$, Alert Level 0.5 $\mu\text{g}/\text{m}^3$)**
 - **Ceiling Limit 5 $\mu\text{g}/\text{m}^3$, Never to Exceed 25 $\mu\text{g}/\text{m}^3$**
 - **OSHA Compliance is Mandatory, Desire to Meet Most Stringent Requirements**
- **Federal Regulatory Requirements**
 - **Regulations include:**
 - **SARA Title III Sections 302 and 313**
 - **CAA - CWA – SDWA – RCRA - DOT**

WHY ELIMINATE TARGETED HM? (Cont'd.)

- Protecting the Force (Soldiers in the Field and Contractors)
- Legal issues
 - Lawsuits Increase Costs and Slow Production
- Financial Impacts
 - Differential pay for exposed workers
 - Health Monitoring for Exposed Workers
 - Increased Training Costs and Requirements
 - Personal Protective Equipment (PPE)
 - Disposal Of Spent Material Is Costly
 - Be, Cd, Cr are Resource Conservation and Recovery Act (RCRA) Land-Ban Items



WHY ELIMINATE TARGETED HM? (Cont'd.)

- Environmental Final Governing Standards Now Addressing These Materials
 - European Union (EU) - End of Vehicle Life (ELV) Regulations
 - Lead, Cadmium, Chrome, Mercury, Beryllium
 - EU Consumer Electronics and ELV
 - Japan and Far East Regulations
 - Ban or Severely Restrict Material Use
 - Compliance with Federal, State and Local Regulations



APPROACH

- Determine Technical Requirements
 - Application and Material
 - Appropriate Specifications
- Identify Testing Requirements
 - Form, Fit, and Function
 - Component Performance



EXAMPLES OF SUCCESS

- **Chrome-Free Coatings Program**
 - Cr+6 known carcinogen
 - Found in paints and primers on delivered a/c from 1980s
 - Excellent corrosion inhibitor
 - Health hazard in depainting and grinding operations
 - Cr+3 under investigation as alternative and showing great promise
 - Same anti- corrosive properties? (hydrogen embrittlement)
 - Surface treatment prior to priming and painting
 - No adverse effect on substrate
 - Allow proper bonding of paints and primers to the substrate
- **Traditional Compliance**
 - Site Surveys
 - Clean-up Oversight (BRAC return to Civil Authority)

CCAD Painting Operations



G-4 Environmental Division– SUPPORT

- G-4 Environmental Division (ED)
 - Help Identify R&D Requirements and Funding Resources
 - Validation Process
 - Material Compatibility
 - Toxicity Clearance through Center for Health Promotion and Preventive Medicine (CHPPM)
 - Implementation Process

G-4 ED – SUPPORT (Cont'd.)

- G-4 ED
 - Coordinate With and Provide Inputs to Other DoD Efforts
 - Hard-Chrome Alternatives Team (HCAT)
 - Joint Group on Pollution Prevention (JG-PP)
 - Environmental Security Technology Certification Program (ESTCP)
 - Strategic Environmental Research and Development Program (SERDP)
 - Propulsion Engineering Working Group (PWEG)

MISCELLANEOUS

- Capital Improvement Program (Environmental Projects)
 - **Economic Analysis**
 - Engineering Specifications
 - Market Surveys
 - Technical Analyses
 - Industrial Engineering Support
 - Shop Layout
 - Process Optimization
- WMD Vulnerability Assessment and Emergency Response Plan Advisors

SUMMARY

- Dynamic Dedicated Staff of Technical Professionals
 - Engineers, Biologists, Chemists, Physicists, Zoologists, Lawyers
- Protecting the Force
- Reducing Environmental Risks
- Reducing Operating Costs
- Ensure Regulatory Compliance

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BACK-UP SLIDES

WHERE ARE PRIORITY HMs

- Asbestos
 - Gaskets, Boots, O-Rings
 - Sealants
 - Adhesives
 - Insulating Materials

WHERE ARE PRIORITY HMs (Cont'd.)

- Beryllium
 - Alloys
 - Gyroscopes
 - Tools – Non-Sparking
 - Metal Gaskets
 - Engine Components
 - Turbine Stator and Rotor Blades

WHERE ARE PRIORITY HMs (Cont'd.)

- Cadmium
 - Fasteners
 - Plated Coatings
 - Alloys
 - Brackets and Fittings
 - Coatings
 - Corrosion Resistant Plating (Plating Baths)
 - Landing gear
 - Control Rods

WHERE ARE PRIORITY HMs (Cont'd.)

- Chromium
 - Plated Components (Plating Baths)
 - Coatings
 - Pigments and Corrosion Inhibitors
 - Conversion Coatings & Anodize Coatings
 - Aluminum, Magnesium
 - Chromate Seals
 - Cadmium Plating, Stainless Steels, Magnesium, Phosphates
 - Alloys (Stainless Steels, Monel, Inconel, etc.)
 - Alloyed Chromium Is Not an Environmental Concern – Welding Fumes and Grinding Dusts Will Be an Environmental Issue if it is a HAP